



L1 Global Planning Meeting

Agenda:

- Me: Big picture planning
 - System in flux
 - Funding time line
 - How to proceed
- Stephanie: Task list status in only scheme
- Michael: Comments on R&D needs for jets



System Design In Flux

Architecture committee has review three possible architectures and given a tricky suggestion...

Architectures:

- 1) IDR two-level system ($L0 = 1 \text{ MHz} / 6\text{-}10 \mu\text{s}$, $L1 = 400 \text{ kHz} / 30\text{-}60 \mu\text{s}$)
- 2) IDR one-level system ($L0 = 1 \text{ MHz} / 6\text{-}10 \mu\text{s}$)
- 3) High-rate/low-latency two-level system ($L0 = 4 \text{ MHz} / \sim 5 \mu\text{s}$, $L1 = 600 \text{ kHz} / \sim 25 \mu\text{s}$)

Committee conclusions:

- Physics Case for high-rate is weak
- Not certain inner Pixels can reach 1 MHz readout
- NSW electronics can support a greater than 1 MHz readout for $L1 < 25 \mu\text{s}$
- “Significant support for starting with single level system, but implementing necessary hooks to go to dual level”

<https://indico.cern.ch/event/571029/contributions/2310003/>



Recent TDAQ Discussion

<https://indico.cern.ch/event/576701/>

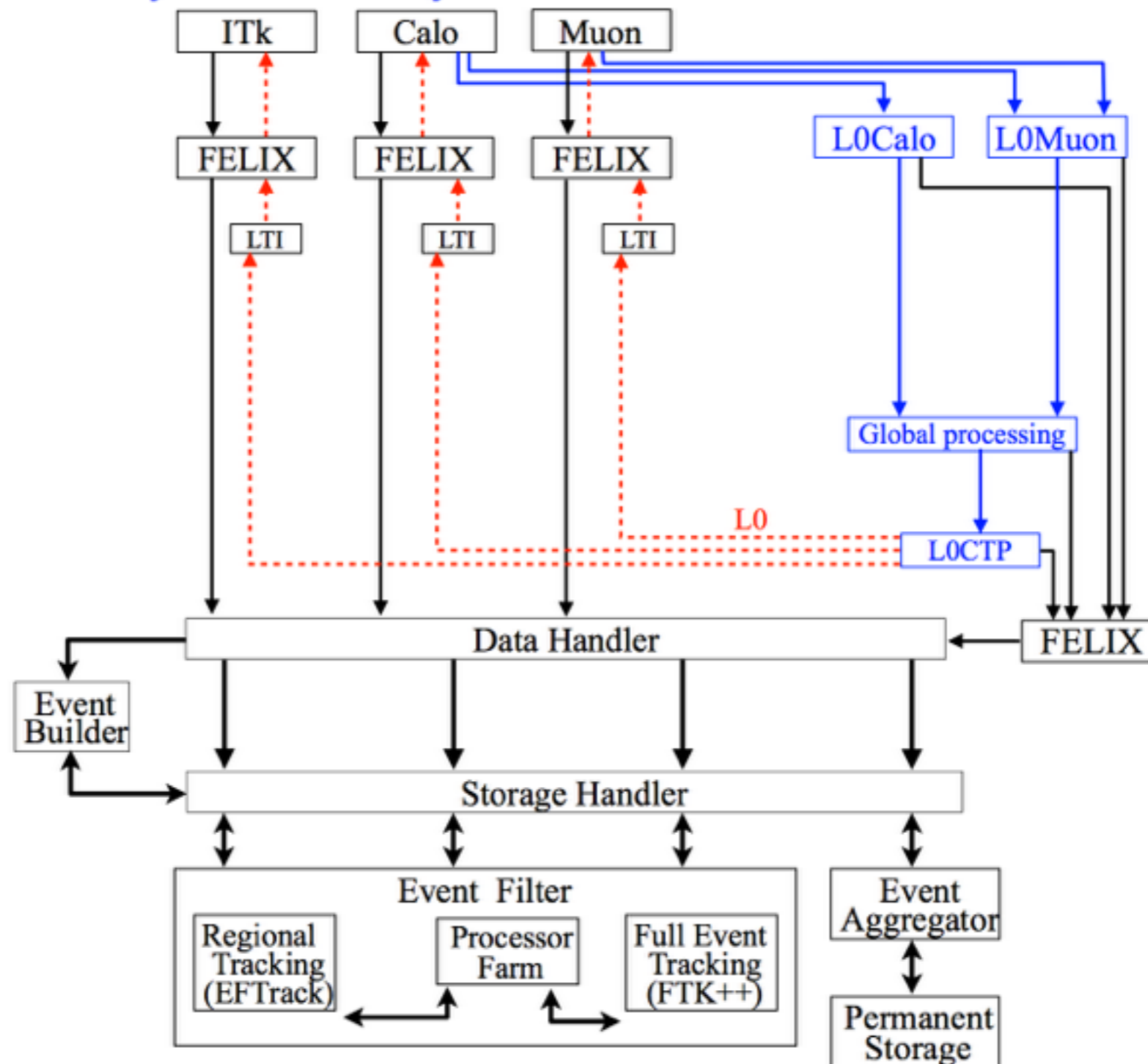
From talk by David Francis:

- o TDR to describe an initial Level-0 only that can evolve to a level-0 – level-1
 - **Justification**
 - a) Physics requirements
 - b) MDT at Level-0
 - c) Reduced design and operation complexity
 - d) timeline/resources
 - **Should allow**
 - a) EFtrack to be used as L1track
 - b) MDT trigger should be designed to operate at Level-0 or Level-1
 - c) Phase-2 L0topo to be designed to include eventual L1Global functionality
- o For TDR assess the benefits to ATLAS of additional processing of calorimeter data
- o The hardware implementation of L0Topo functionality should be a platform that supports processing of additional calorimeter data and muon information
 - **i.e. the same hardware could be deployed as an L1Global in an L0/L1 scenario**

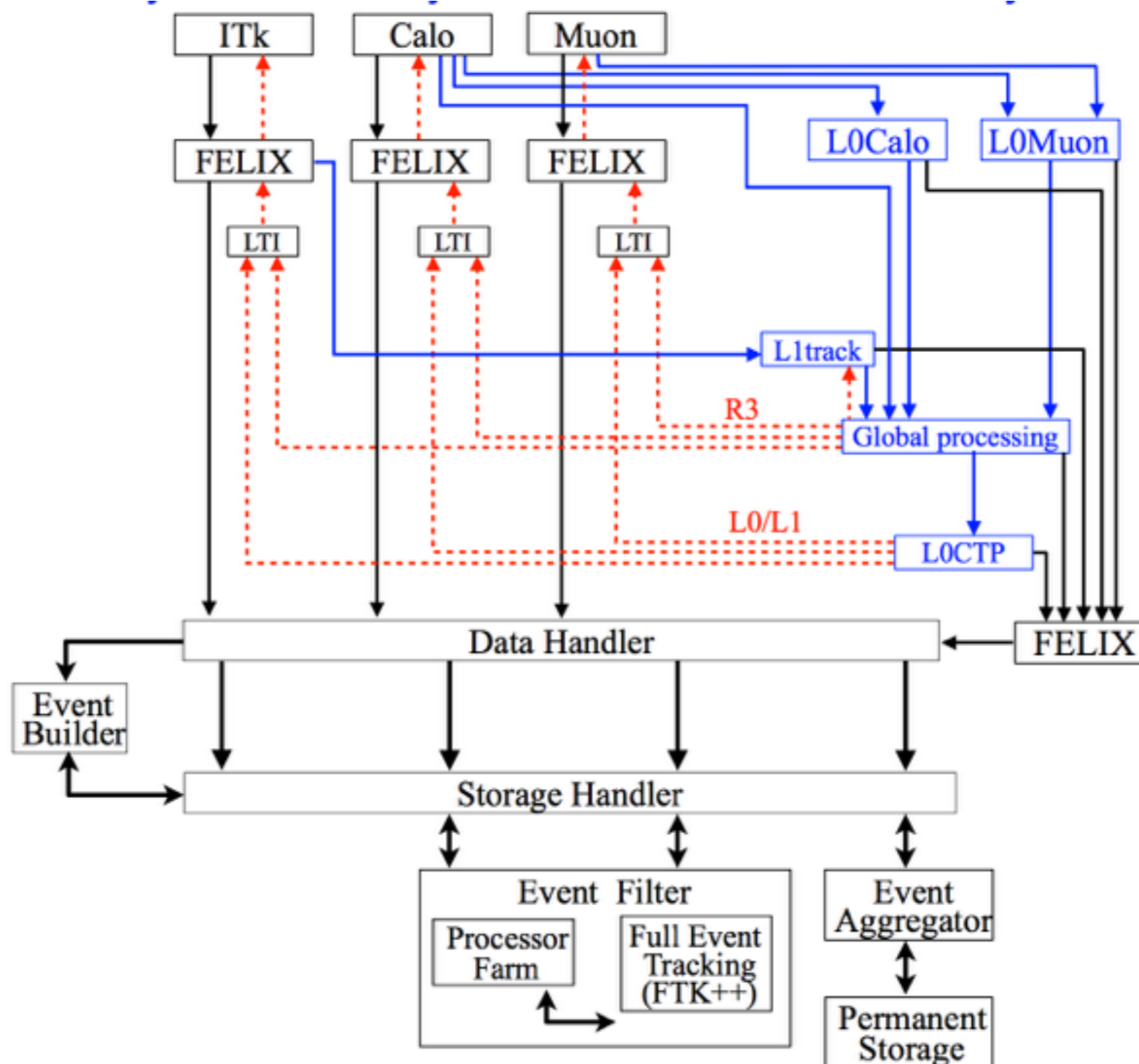


Recent TDAQ Discussion

- Schematically: Level-0 only



Recent TDAQ Discussion





Our Planning...

How do we deal with the uncertainty?

Timeline our planning needs to fit in:

- Next NSF review is PDR Dec 2017
 - DOE CD-I Review is Sept 2017
- DOE (and NSF?) requires independent cost review Apr 2017
 - Outside contractor review contents of our BoE
 - ... and reconstruct our budget from them
- Getting ready for that requires a Director's Review March 2017
- Which requires a “frozen” resource loaded schedule by mid-January

Clearly we won't have an official ATLAS design for this, in fact a full design will probably not be concluded on until close to the TDR



Our Planning...

How do we deal with the uncertainty?

We will prepare a task list that is sufficient to determine scope and demonstrate that we are able to construction realistic schedules and budgets for a design even if we may change the design later

Current plan is limited to hadronic reconstruction firmware (NSF) and data aggregation hardware (DOE)

We want this scope to be large enough to include the full range of possible activities

- Hal suggests we add a hardware component to keep that option open



Our Planning...

Steps (can proceed partially in parallel):

- 1) Define a working US ATLAS design (ideas on later slides)
- 2) Write task lists to cover a possible scope
 - Can be more ambitious than original plan (will get sorted out by project management when they try to sum up everything)
 - Firmware task lists based on gFEX underway (see Stephanie's talk)
 - Add Hardware task lists based on another processing board (e.g. FTK++ mezzanine)
 - Task lists need to be associated with institutes, but can be moved later
- 3) Once written, task lists will need to be resource loaded in “I-on-I” meetings with project office
 - In principle meeting is with institute contact, but for coherence it may make more sense to do this in small groups with L3 (Stephanie) and L2 (me)

An idea

Diagram from Francesco...discussed in Michael's Talk

